WE CLAIM:

1. A method for determining a display order of incoming video object planes (VOPs) in an image processing system, the method comprising the steps of:

5
(a) arranging a first queue of a plurality of cells with a first order;

(b) providing a second queue of a single cell storing an order number;

(c) decoding said incoming video object planes (VOPs);

(d) determining whether said incoming VOPs are intra coded (I-VOPs);

(e) determining whether said incoming VOPs are predictive coded (P-VOPs);

10
(f) determining whether said incoming VOPs are bidirectional predictive coded (B-VOPs);

(g) registering one of said cells of said first queue with a VOP incoming order for said incoming VOPs that are I-VOPs; and

(h) registering one of said cells of said first queue with a VOP incoming order

15
for said incoming VOPs that are B-VOPs.

2. The method of claim 1 further comprising the step of determining whether said single cell of said second queue is null.

20
3. The method of claim 2 further comprising the step of registering one of said cells of said first queue next to one of said registered cells in steps (g) and (h) with said stored order number for said incoming VOPs that are P-VOPs if said single cell of said second queue is not null.

25
4. The method of claim 2 further comprising the step of registering one of said

cells of said first queue next to one of said registered cells in steps (g) and (h) with said stored order number for said incoming VOPs that are not I-VOPs and B-VOPs if said single cell of said second queue is not null.

5   5. The method of claim 1 further comprising the step of registering said single cell of said second queue with said incoming VOP order for said incoming VOPs that are P-VOPs.

6. The method of claim 1 further comprising the step of reading said
10   decoded incoming VOPs according to said first order.

7. The method of claim 1 further comprising the step of indicating whether any of said cells in said first queue is registered.

15   8. The method of claim 1 further comprising the step of indicating whether said single cell of said second queue is registered.

9. An image processing device for determining a display order of incoming video object planes (VOPs) in an image processing system
20   entering into a decoder according to an encoding order, the image processing device comprising:

   control logic forming a VOP display order in response to said incoming VOPs and according to said encoding order;

   a VOP detector determining whether said incoming VOPs are
25   intra coded (I-VOPs), predictive coded (P-VOPs), or bidirectional predictive coded (B-VOPs); and

   a counter counting a number of said incoming VOPs in response to said

18

encoding order.

10. The device of claim 9 further comprising:

a first queue of a plurality of cells numbered with a first order; and

a second queue of a single cell storing an order number.

11. The device of claim 10 further comprising a reader reading said incoming VOPs according to said first order.

12. The device of claim 10 further comprising at least one register registering one of said cells of said first queue with a VOP incoming order for said incoming VOPs that are I-VOPs and B-VOPs.

13. The device of claim 12 wherein one of said cells of said first queue next to one of said registered cells in said at least one register is registered with said stored order number for said incoming VOPs that are P-VOPs if said single cell of said second queue is not null.

14. The device of claim 12 wherein one of said cells of said first queue next to one of said registered cells in said at least one register is registered with said stored order number for said incoming VOPs that are not I-VOPs and B-VOPs if said single cell of said second queue is not null.

15. The device of claim 10 wherein said single cell of said second queue is registered with said incoming VOP order for said incoming VOPs that are P-VOPs.

16. The device of claim 9 further comprising a flag indicating whether

any of said cells in said first queue and said single cell of said second queue is registered.

17. The device of claim 9 further comprising an auxiliary VOP management unit providing parameters for dropping any of said incoming VOPs.

18. The device of claim 9 further comprising an auxiliary VOP management unit providing parameters for indicating memory sufficiency for storing said incoming VOPs.

19. An image processing system comprising:
a decoder decoding and decompressing incoming video object planes (VOPs) entering said decoder according to an encoding order;
control logic forming a VOP display order in response to said incoming VOPs and according to said encoding order;
a VOP detector determining whether said incoming VOPs are intra coded (I-VOPs), predictive coded (P-VOPs), or bidirectional predictive coded (B-VOPs); and
a counter counting a number of said incoming VOPs in response to said encoding order.

20. The system of claim 19 further comprising a memory storing said incoming decoded VOPs.

21. The system of claim 20, said memory further comprising random access memory (RAM), dynamic random access memory (DRAM), static random access memory (SRAM) and flash memory.

22. The system of claim 19 further comprising:

a first queue of a plurality of cells numbered with a first order; and

a second queue of a single cell storing an order number.

23. The system of claim 22 further comprising a reader reading said decoded incoming VOPs according to said first order.

24. The system of claim 22 further comprising at least one register registering one of said cells of said first queue with a VOP incoming order for said incoming VOPs that are I-VOPs and B-VOPs.

25. The system of claim 24 wherein one of said cells of said first queue next to one of said registered cells in said at least one register is registered with said stored order number for said incoming VOPs that are P-VOPs if said single cell of said second queue is not null.

26. The system of claim 24 wherein one of said cells of said first queue next to one of said registered cells in said at least one register is registered with said stored order number for said incoming VOPs that are not I-VOPs and B-VOPs if said single cell of said second queue is not null.

27. The system of claim 22 wherein said single cell of said second queue is registered with said incoming VOP order for said incoming VOPs that are P-VOPs.

28. The system of claim 19 further comprising a flag indicating whether any of said cells in said first queue and said single cell of said second queue is registered.

29. The system of claim 19 further comprising an auxiliary VOP management unit providing parameters for dropping any of said incoming VOPs.

5   30. The system of claim 19 further comprising an auxiliary VOP management unit providing parameters for indicating memory sufficiency for storing said incoming VOPs.